REMARKS

Claims 5-6 are rejected under 35 U.S.C. §112. Claims 1-4, 7-8, 10-13, 16, 27-30, and 32 are rejected under 35 U.S.C. §102(b) under the reference of Powell et al. (U.S. Patent No. 4,612,512).

Claims 1-3, 7-12, 16-17, 27-28 and 32 are also rejected under §102(b) over the reference of Jewell et al. (U.S. Patent No. 4,661,888). Claims 1-3, 7-8, 10-12, 16, 27-28 and 32 are also rejected under §102(b) over the reference of Casebolt (U.S. Patent No. 5,774,344). Claims 1-8 and 10-35 are rejected under 35 U.S.C. §103(a) over Posner (U.S. Patent No. 6,531,918) as modified by Casebolt.

Claims 1-17, 19-22 , 25, 27-32 and 34-35 are cancelled. Claims 36-39 are new claims.

SECTION 112 REJECTIONS

Claims 5-6 have been cancelled and, thus, the §112 rejection of those claims is now moot.

SECTION 102 REJECTIONS

The remaining claims, including independent claims 18 and 33 and various of the dependent claims have been amended to further clarify and recite the invention. The Applicant submits that the invention as claimed is not anticipated by any of the cited references of Powell et al., Jewell et al., or Casebolt.

Specifically, referring to claim 18, that claim has further been amended to recite an amplifier incorporating a main amplifier subcircuit and an error amplifier subcircuit on a single circuit board, along with the unique lid and chassis structure that is utilized to not only provide RF isolation, but to provide sufficient RF isolation between the main amplifier subcircuit and the error amplifier subcircuit such that those amplifier subcircuits may not only be positioned together in a single housing, but also may be coupled onto a single circuit board. As noted in the pending application, such a unique design provides a reduction in the complexity, size and overall cost of the amplifier design, and particularly a feed-forward amplifier design, while still achieving the desired efficiency and isolation characteristics in its operation.

To that end, claim 18 recites a main amplifier subcircuit and an error amplifier subcircuit mounted together on a single circuit board. A chassis body is utilized in combination with a lid structure to contain the circuit board and the main and error amplifier subcircuits.

One of the lid structure and the chassis body have side walls extending therefrom. The side walls define a main amplifier cavity with subcavities to contain the subcircuits that make up the main amplifier subcircuit. The side walls further define an error amplifier cavity with subcavities to contain the subcircuits that make up the error amplifier subcircuit. That is, each of the main amplifier and the error amplifier subcircuits are made up of individual components or other subcircuits that operate together to provide a main amplification and an error amplification. Such

side walls, which define the main and error amplifier subcavities, extend to contact the circuit board and to isolate the various subcircuits.

While the side walls that extend down and contact the circuit board are sufficient for isolating individual subcircuits from each other within the main amplifier cavity or from each other within the error amplifier cavity, it is necessary to provide additional and more robust isolation between the actual main amplifier and error amplifier. To that end, it is necessary for the more robust isolation to be provided between the main amplifier cavity, which includes the main amplifier component subcircuits and the error amplifier cavity, which includes the error amplifier component subcircuits. Claim 1 further recites that the lid structure and the chassis body include a dividing wall, which has multiple islands extending therefrom. The multiple islands pass through multiple cut-outs that are formed in the single circuit board between the main amplifier subcircuit and respective cavity, and the error amplifier subcircuit and respective cavity, as recited in claim 18. The multiple cut-outs allow the main and error amplifier subcircuits to be mounted on a single circuit board because spanning portions keep the main and error amplifiers on a single board. The dividing wall, via the multiple islands passing through the cut-outs formed in the board, electrically couple the lid structure and chassis body together at the dividing wall. Therefore, in addition to separating the amplifier cavities, the dividing wall also provides an enhanced level of electrical isolation between the main and error subcircuits.

That is, the present invention utilizes a multiple stage isolation design wherein the side walls extend to contact the circuit board for isolating subcircuits

within one or more of the main or error amplifiers. However, in order to separate the actual main and error amplifiers and their component subcircuits, a greater level of isolation is provided by the dividing wall with multiple islands that provide direct physical and, therefore, electrical contact, between the lid structure and chassis body. This provides significant advantages over the prior art as discussed above. For example, a single circuit board may be utilized, handled and manipulated containing both an error amplifier and a main amplifier. Furthermore, the assembly of the lid structure and chassis body is simplified with multiple subcavities being isolated in the single step of coupling the lid structure with the chassis body to contain a single circuit board therein. The various inner stage walls 280 (see Figure 3A), which are utilized to isolate the component subcircuits within the subcavities, may be similarly machined to simply contact the circuit board for isolation, because sufficient isolation is provided by such a structure. The additional step of providing cut-outs within the circuit board and formed islands within the dividing wall are then contained only to the substantial wall that separates the error amplifier from the main amplifier where enhanced isolation is necessary. This further reduces the complexity and the overall cost of the design, including the overall cost of manufacturing the lid structure and the chassis body of the amplifier. Furthermore, the elimination of connections between separate chassis eliminates individual shield assemblies that are generally necessary and feed-forward designs utilizing main and error amplifiers are eliminated to provide additional cost savings.

None of the references of Powell et al., Jewell et al. or Casebolt teaches each and every one of the elements recited in claim 1 and its various dependent

claims. For example, claim 18 now recites limitations from claims 19 and 21, which were not rejected as anticipated by any of those references. Accordingly, claim 18 and its various dependent claims, including claims 23, 24 and 26 are not anticipated under §102 by the cited art. Similarly, the method claim 33 is also allowable for the reasons discussed above.

New claims 36-39 also include the limitations similar to those recited in claim 18, which are not anticipated or taught by the references of Powell et al., Jewell et al. and Casebolt.

Accordingly, the section 102 rejections should be withdrawn.

SECTION 103 REJECTIONS

Claims 1-8 and 10-35 are rejected under 35 U.S.C. §103(a) over the reference of Posner as modified by Casebolt. The Examiner argues that the Posner reference discloses an amplifier and specifically a feed-forward amplifier that includes a main amplifier and an error amplifier. However, the Posner reference is merely directed to teaching a specific circuit design with respect to the amplifier. As the Examiner recognizes, Posner does not teach anything to a person of ordinary skill in the art regarding the containment or construction of the amplifier and the isolation of its various circuits and subcircuits. That is, it is silent with respect to the specific area to which the invention is directed. However, recognizing that lack of teaching, the Examiner turns to Casebolt, which discloses an RF shield for a circuit card. The Casebolt reference is directed to a box for shielding a circuit card.

However, the Casebolt reference does not discuss specifically an amplifier circuit, nor does it discuss the problems associated with amplifiers such as feed-forward amplifiers, which utilize two different amplifier subcircuits, mainly an error amplifier subcircuit and a main amplifier subcircuit. As such, the Casebolt reference fails to teach or even appreciate the need for RF isolation of two amplifier circuits in a single amplifier subcircuit, which includes one level of isolation suitable for individual subcircuits within an amplifier subcircuit, and another level of isolation that must be provided between the distinct amplifier subcircuits that make up the main amplifier and those components or subcircuits, that make up the error amplifier. RF leakage between the main amplifier and an error amplifier will significantly degrade the operation of the overall amplifier although such isolation may not be particularly necessary between individual components or subcircuits of the same amplifier, i.e., the main amplifier or the error amplifier.

Furthermore, there is absolutely no teaching between either the Posner reference or the Casebolt reference that an amplifier might be designed wherein the main amplifier and the error amplifier are positioned on a single circuit board.

Therefore, the Examiner's assertion that it would be obvious to place the Posner amplifier inside the housing of Casebolt finds no support in those two references, but rather is a creation driven by the present invention itself, and would be a hindsight creation, at best. It is certainly well established that such hindsight, absent a motivation provided by the actual references, is insufficient to sustain an obviousness rejection under §103. In the present case, neither reference cited appreciates the problem addressed by the invention; i.e., combining two distinct

amplifier circuits into a single housing and on a single circuit board while maintaining significant isolation between the two high powered amplifier circuits. Furthermore, even if the combination was properly made (and it is not), it still would not teach the present invention as claimed.

The Examiner refers to the pins 30 disposed around the walls 120, as being islands. However, such pins are thin and narrow and would provide merely pinpoint contact between the casing halves. They are not islands as disclosed in the invention, which provide solid and significant electrical contact between the lid and body. Furthermore, such pins are utilized to extend around every wall and, therefore, any circuit board utilized must contain a series of holes formed therein to align with the pins. Not only does this present a significant cost to fabricate such a casing, but also the circuit board would need to be precisely bored around every single wall to provide for precise alignment, such that assembly would be tedious and, therefore, expensive.

However, the present invention utilizes a multiple tiered isolation scheme in which side walls extend from one of the lid structure and the chassis body to define a main amplifier cavity and an error amplifier cavity, with respect to subcavities. The side walls extend to contact the circuit board and isolate the individual subcircuits. No special pins are utilized and no extension through the circuit board is necessary along each of the side walls for isolation of the various subcircuits. However, concerning the close proximity of both the error amplifier and the main amplifier on the same circuit board, a feature not recognized by either Posner or Casebolt, the present invention provides an additional tier of isolation by utilizing a thick,

substantial dividing wall, which is illustrated in Figure 3A as compared to the side walls 280. The dividing wall has multiple broad islands (not pins) that extend therefrom and pass through multiple cut-outs formed in the circuit board between the main amplifier subcircuit and respective cavity in the error subcircuit and respective subcavity, as recited in claim 18. At the dividing wall, the lid structure and chassis body are directly electrically coupled to each other through the islands to substantially electrically isolate the main amplifier and error amplifier subcircuits from each other.

The combination of Posner and Casebolt does not in any way teach such a unique multiple tier isolation, wherein contact between the side walls and a circuit board is sufficient to isolate individual subcircuits in an amplifier, but wherein a dividing wall with multiple islands extending there through is necessary for separating a main amplifier and an error amplifier. Accordingly, even if properly combined, the present invention would not be taught by the combination of the Posner reference as modified by the Casebolt reference.

Therefore, not only is there no proper teaching to provide some sort of combination of these two references, but also, if combined, these two references do not teach the invention as recited in the claims. Accordingly, pending claims 18, 23-24, 26 and 33 are not rendered obvious under §103 by the combination of cited art.

NEW CLAIMS

New claims 36-38 each depend from claim 33 and, thus, are allowable for the reasons discussed hereinabove. Claim 39 includes limitations similar to those noted

in claim 18 and is allowable also for the reasons discussed above. Furthermore, each of these new claims recites a unique combination of elements not taught by the cited art.

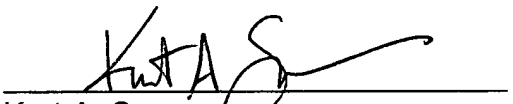
CONCLUSION

Applicants submit that the currently pending claims recite a unique combination of elements or method steps that are not anticipated or rendered obvious by the cited art alone or in combination. Accordingly, all the pending claims are in an allowable form and, therefore, Applicants request a Notice of Allowability of the claims at the Examiner's earliest convenience. If any issues remain in the case which might be handled in an expedited fashion, such as through a telephone call or an Examiner's Amendment, the Examiner is certainly encouraged to telephone the Applicant's representative or to issue an Examiner's Amendment.

Applicant knows of no fees due herein with this submission. However, if any charges or credits are necessary, please apply them to Deposit Account 23-3000.

Respectfully submitted,

WOOD, HERRON & EVANS, L.L.P.



Kurt A. Summe
Reg. No. 36,023

2700 Carew Tower
Cincinnati OH 45202
(513) 241-2324 (voice)
(513) 421-7269 (facsimile)